

Students' Ethical Decision-Making in an Information Technology Context: A Theory of Planned Behavior Approach

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ABSTRACT

Business educators have increased the focus on ethics in the classroom. In order for students to become ethical professionals, they must first be held to an ethical standard as students. As information technology continues to permeate every aspect of students' lives, it becomes increasingly important to understand student decision-making in this context. This study seeks to apply a modified form of the Theory of Planned Behavior to assess influences on behavioral intention when IT is involved in an academic setting. Attitude, subjective norm, perceived behavioral control, moral judgment, and perceived importance are investigated. After pilot testing four scenarios and the instrument, 90 survey responses are gathered from undergraduate business students from two southwestern universities in the United States. Using SmartPLS, results are assessed by scenario. The results indicate that attitude, subjective norm, moral judgment and perceived importance are significant in some of the scenarios, whereas perceived behavioral control is not significant in any scenarios. A discussion of the contributions of this study, as well as limitations, is provided.

Keywords: Ethics, Information and communication technologies, Student attitudes

1. INTRODUCTION

College faculty continuously struggle to promote ethical behavior among students. Recent evidence from the Josephson Institute *Report Card on the Ethics of American Youth* shows that current high school students confess to

cheating in school at alarming rates. In the survey of more than 40,000 students, fifty-nine percent of them report cheating on a test in the past year. Further, one-third of the respondents own up to plagiarizing through use of the Internet (Josephson Institute, 2010). Universities are also struggling with cheating on assignments, quizzes, and online

exams, as evidenced in the scandal at the University of Central Florida (Nies and Russo, 2010). Business colleges have responded to this and recent corporate scandals by offering designated courses in ethics. In fact, some disciplines require an ethics course for students to be eligible to sit for a standardized exam (e.g. in accounting the Certified Public Accountants examination). The same holds true for information technology (IT). While there may not be a dedicated course in IT regarding ethics, ethical behavior is essential in such a dynamic and vastly changing discipline.

College students admit to plagiarizing from the Internet to complete assignments. More specifically, undergraduate students find intellectual property violations to be more acceptable when IT is involved than when it is not (Molnar, Kletke and Chongwatpol, 2008). Additionally, undergraduate students make more of a justification for cheating when IT is involved for them personally (Molnar, Kletke and Chongwatpol, 2008). Why would the use of IT make a difference? Why would an intellectual property violation be judged differently due to the means used for the action? There seems to be a “disconnect” for the students when IT facilitates the action. The use of IT makes completing such an action very simple. For example, copying another’s work from the Internet is completed with a mere copy and paste. Completing the same action without IT requires that the student physically type the material word-for-word. The action of typing makes it more likely that the student will revise the material because effort is exerted to complete the task anyway. Another common ethical concern online is the fabrication of information. Prior research finds that consumer falsifications online are affected by one’s attitude, perceived behavioral control, and perceived moral obligation (Lwin and Williams, 2003). The Internet provides lack of personalization which allows individuals to be whomever they wish online; and in many cases, there is simply no way to verify the validity of the information.

Given that IT presents a new challenge for ethical behavior, this study examines students’ behavioral intentions when using IT to determine ways to promote ethical behavior when using technology. The Theory of Planned Behavior (TPB) is utilized to study the influences on a student’s behavioral intentions when IT is involved in an academic setting. More specifically, this study examines the influence of attitude, subjective norm, and perceived behavioral control and extends the TPB by including moral judgment and perceived importance as potential influences.

The paper begins with background literature regarding TPB and each factor proposed to be an influence, along with a hypothesis for each factor. This is followed by the research method and the study results. Finally, a discussion, limitations and conclusion are presented.

2. THEORY OF PLANNED BEHAVIOR

The Theory of Planned Behavior is used in this study to assess a student’s behavioral intention when using IT. TPB is an extension of the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975). The TRA indicates that one’s attitude toward an act and one’s subjective norm can be used to explain behavior and intentions. Ajzen (1985, 1989, 1991) extended the TRA to the TPB by adding perceived

behavioral control. Perceived behavioral control is said to help better predict intention and behavior. Ajzen and Madden (1986) found the TPB to more accurately predict behavioral intentions than the TRA. Therefore, the TPB is used in this study to predict behavioral intention through the examination of attitude, subjective norm (or personal normative beliefs), and perceived behavioral control. Since the TPB alone does not cover all dimensions of ethical behavior, two additional items were considered – moral judgment and perceived importance. Moral judgment and perceived importance have been proven as significant factors when assessing ethical behavior. While the TPB is a start to understanding ethical behavior intention, research over the years has shown that additional factors must be considered. More specifically, moral judgment has been found to be an important component of IT ethical behavior models (Banerjee, Cronan, and Jones, 1998) with the way a person reasons impacting his/her behavioral intention, and perceived importance has been validated as a significant measure of ethical behavior intention (Cronan, Leonard, and Kreie, 2005) with the importance of an issue determining one’s behavioral intention. Since these factors have been found significant since the TPB’s initial development, they have been added to this study in order to depict a more accurate ethical behavior model.

We propose that a student’s ethical behavior intention when using IT is influenced by the following: attitude, subjective norm, perceived behavioral control, moral judgment, and perceived importance. See Figure 1 for a graphical depiction of the model. The dashed line indicates that the actual behavior was not tested in this study but the construct is included for completeness of illustrating the TPB. Each of the tested constructs is discussed below beginning with the dependent variable.

2.1 Behavioral Intention

Behavioral intention is one’s intention to perform or not perform the act (Fishbein and Ajzen, 1975). It is a measure of one’s intention to behave ethically or unethically. The TPB indicates that an individual’s ethical behavior intention is determined by attitude, subjective norm, and perceived behavioral control. This study also adds moral judgment and perceived importance as indicators of behavioral intention.

Ajzen (1991) suggests that an individual’s behavior can be accurately predicted from intentions. Intentions show the motivation behind a behavior and indicate the amount of effort one is willing to exert to perform a behavior. Therefore, behavioral intention is considered as an antecedent to actual behavior and has been tested extensively as such (Banerjee, Cronan, and Jones, 1998; Leonard and Cronan, 2001; Leonard, Cronan, and Kreie, 2004).

2.2 Attitude

The first independent variable is attitude, defined as the degree to which an individual favorably or unfavorably evaluates the behavior (Fishbein and Ajzen, 1975). Attitude is dependent on one’s beliefs and the evaluation of those beliefs. The TRA and TPB validate that attitude is a reliable predictor of behavioral intention. Additionally, Leonard, Cronan, and Kreie (2004) found attitude to influence behavioral intention across many different IT scenarios.

Attitude has been researched extensively as part of the TPB in ethics' studies. In particular, attitude has been found to

have an influence on an individual's behavioral intention in an academic misconduct situation (Stone, Jawahar, and

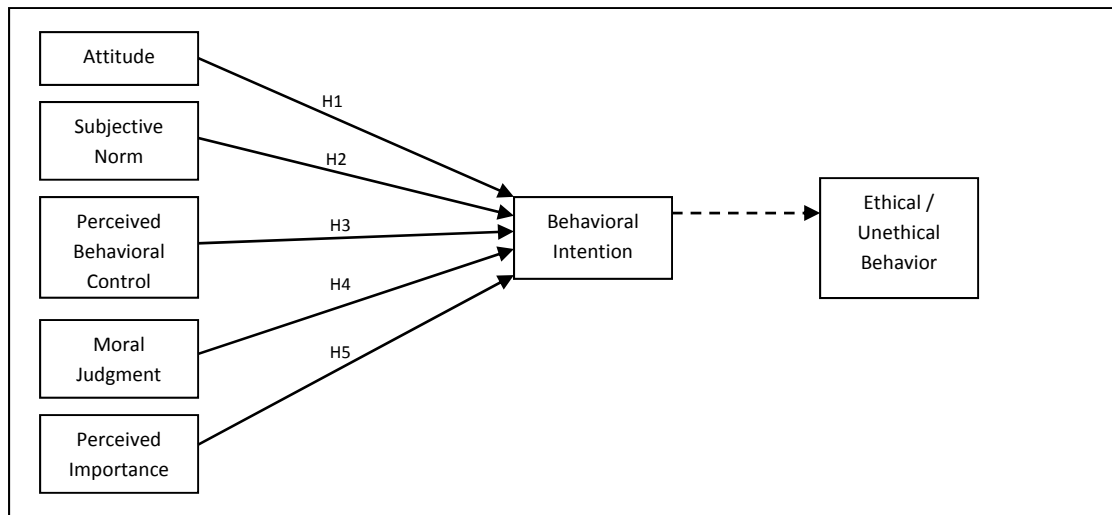


Figure 1. Theoretical Model

Kisamore, 2009), on his/her intention to use pirated software (Chen, Pan and Pan, 2009; Liao, Lin and Liu, 2010; Phau and Ng, 2010), to pirate digital material (Cronan and Al-Rafee, 2008) and to intentionally download illegal music (Plowman and Goode, 2009), on one's intention to purchase non-deceptive counterfeit products (Koklic, 2011), and on an individual's behavioral intention to steal time at work (Henle, Reeve and Pitts, 2010). Additionally, Lwin and Williams (2003) investigated factors that contribute to people fabricating information when online. Among other findings, they found attitude to play a significant role in intention to supply false information. The authors suggest anonymity as a potential reason for this finding. Simkin and McLeod (2010) studied why students cheat. Among their findings, they indicate that a student's attitude significantly influences his intention to cheat. Based on these prior studies, we hypothesize the following:

H1: Attitude directly relates to behavioral intention when using IT.

2.3 Subjective Norm

Subjective norm (SN), also referred to as personal normative beliefs (PNB), is defined as the moral obligation to perform an act (Schwartz and Tessler, 1972). Prior work finds PNB to substantially contribute to the explanation of the variance in behavioral intention (Ajzen and Fishbein, 1969). PNB has been found to significantly influence IT ethical behavior intention (Banerjee, Cronan, and Jones 1998; Leonard and Cronan, 2001; Leonard, Cronan, and Kreie, 2004), and SN has been found to influence an individual's behavioral intention in an academic cheating situation (Simkin and McLeod, 2010; Stone, Jawahar, and Kisamore, 2009), one's intention to use pirated software (Chen, Pan, and Pan, 2009), one's intention to choose information systems as a major (Zhang, 2007), and one's intention to steal time at work

(Henle, Reeve, and Pitts, 2010). Therefore, we hypothesize the following:

H2: Subjective norm directly relates to behavioral intention when using IT.

2.4 Perceived Behavioral Control

Perceived behavioral control (PBC) is the perceived ease or difficulty of achieving the behavior in question (Ajzen, 1991). With the use of IT, an individual may find particular behaviors easier to achieve which may affect how he/she reacts. As stated earlier, copying material from the Internet is simple and easy to achieve. PBC can be based on past experiences and anticipated obstacles (Ajzen, 1991), and can be used to measure a person's sense of control when faced with a difficult situation, especially when ethics is involved. PBC has been found to influence behavioral intention in an academic setting (Stone, Jawahar, and Kisamore, 2009), intention to use pirated software (Chen, Pan, and Pan, 2009; Liao, Lin, and Liu, 2010) and to pirate digital material (Cronan and Al-Rafee, 2008), intention to steal time at work (Henle, Reeve, and Pitts, 2010), and intention to fabricate information online (Lwin and Williams, 2003). Based on these findings, we hypothesize the following:

H3: Perceived behavioral control directly relates to behavioral intention when using IT.

2.5 Moral Judgment

Moral judgment (MJ) is defined as the way a person reasons when faced with an ethical decision (Banerjee, Cronan and Jones, 1998). This reasoning depends on one's stage of moral development (Kohlberg 1969, 1971, 1976, 1980, 1984, 1985). Kohlberg's work indicates that individuals pass through "culturally universal stages" of moral development and these stages are experienced in an "invariant, irreversible sequence" (Banerjee, Cronan, and Jones 1998). Individuals

pass through stages of moral development as they transform from early childhood to adulthood. Everyone begins at stage one and moves to subsequent stages depending on his/her moral development. However, not everyone reaches the highest stage. Therefore, the way a person reasons when faced with an ethical situation will depend on his/her stage of moral development; higher stages of moral reasoning result in increased ethical decision making and intended behavior (Trevino, 1986). Moral judgment has been found as an influence on one's intention to purchase pirated software (Tan, 2002). Based on these findings, we hypothesize:

H4: Moral judgment directly relates to behavioral intention when using IT.

2.6 Perceived Importance

Perceived importance (PI) is similar to moral intensity, as researched by Trevino (1986) and Jones (1991). Robin, Reidenbach and Forrest (1996) took the work of Trevino and Jones and proposed a new variable, termed "perceived importance." They defined PI as "an individual state construct that is believed to be closer to the behavioral intention and behavior decisions than the moral intensity construct suggested by Jones (1991), and hence, is likely to be a better predictor of those decisions" (Robin, Reidenbach, and Forrest, 1996, p. 17). Cronan, Leonard, and Kreie (2005) validated the PI measure in an IT setting. They found that individuals will judge a behavior as being unethical and will tend to behave more ethically when they perceive the issue to be important, and vice versa. Therefore, we state the following hypothesis:

H5: Perceived importance directly relates to behavioral intention when using IT.

The methods, results and discussion sections are presented next.

3. METHODS

For this study, the development of the instrument began by using available sources (see appendix 1) and developing scenarios to fit the research question. The draft and a revision were circulated to researchers who had published articles relating to IT and ethics and to business professionals who did consulting and training in ethics. Comments were received from eight experts and incorporated into the instrument and scenarios. After these changes, the instrument and scenarios were further pilot-tested on nine graduate student subjects who were enrolled in a graduate business ethics class. The pilot subjects were asked to review and complete the instrument. Further, they were asked to give feedback about their ability to understand the scenarios and the questions presented. Lastly, they reported the time required to complete the instrument. Both written and discussion comments were received from the pilot-test subjects and were used to further refine the instrument and scenarios.

Undergraduate students from two southwestern universities in the United States were asked to complete the instrument which assessed their general perceptions about a

series of scenarios presenting IT ethical situations in academic settings. Students were informed that participation was completely voluntary and that their responses would be reported only at the aggregate level and would be kept anonymous. A total of 90 responses were collected with 52 responses from students at one university and 38 from the other. The participants were all students in sophomore or junior level business level classes. For the group, 93.3% of respondents were between the ages of 18 and 24, and 89.9% of them were classified as sophomores and juniors. Seventy-one percent of the respondents were male. In addition to collecting general demographic information, participants were asked about their use of the following technology tools for communication: e-mail, text messaging, instant messaging, chat rooms, Facebook®, LinkedIn®, MySpace®, Twitter®. Since the context of the decisions in the experiment relies on an IT context, we wanted to measure the students' use of these tools in daily life. As we expected, student use is quite heavy. The students in the sample utilize approximately four of the tools on average. In addition, they spend over two hours per day over six days a week connected through IT. Detailed demographic information is given in Table 1. All measures for the constructs used in this study have been adapted from previously validated scales in the literature as shown in Appendices 1 and 2. Appendix 2 provides the details for the Improper Internet Citations scenario including the specific measurement items. A summary of all the scenarios is provided in Table 2, as well as descriptive titles that will be referred to throughout the remainder of the paper.

Demographic Variable	Percentages
Age	18 to 24 (95%) 25 and over (5%)
Gender	Male (71%) Female (29%)
Major	Accounting (21%) Finance (19%) Management (19%) Marketing (12%) MIS (2%) Other/Unknown (27%)
Race	African American (7%) Asian (16%) Caucasian (70%) Other/Unknown (7%)
Classification	Sophomore (52%) Junior (37%) Senior (8%) Other/Unknown (3%)
Days/week using technology tools for communication	Mean = 6.09 days Std. dev. = 1.71 days
Hours/day using technology tools for communication	Mean = 2.13 hours Std. dev. = 2.24 hours

*Sample Size (n=90)

Table 1. Demographic Data*

The data was analyzed using SmartPLS Version 2.0 following guidelines outlined by Chin (1998). One of the advantages of PLS is its robustness and its ability to provide

<p>Improper Internet Citations It is 11:00 p.m. and Susan is Facebook chatting with her friends. She has not started writing her research essay due the next day. One of her friends suggests finding papers on the subject from the Internet. Susan takes her friend's suggestion and copies and pastes three paragraphs exactly from a website and places them in her essay. She puts the URL at the end of the three paragraphs referencing the web site, but does not include any quotation marks. She continues by adding some paragraphs of her own to the writing. Even though University policy indicates that all material taken directly from sources must be quoted, Susan feels that the URL placed at the end of the paragraphs is sufficient.</p>
<p>Chat Room Project Students in Professor Ziegler's management information systems class are required to complete a group project via a chat room as one of their assignments. Professor Ziegler announces to the class that it is important that each member of the group work on the project equally as the group will receive only one grade, and only those teammates that do contribute equally should receive credit for the assignment. Group One consists of four members, Alyssa, Brian, Carole, and David. One week before the project is due, all four members met electronically in a chat room, each individually participated, and together they completed half of the project. The night before the project is due, the members meet via chat room again to complete their project. Brian, Carole, and David each contribute equally during the session. Alyssa logs into the chat room but does not contribute. The other members work for over two hours and send her repeated messages, but she never responds. The next day, Alyssa arrives to class with no excuse for her lack of contribution during the online chat session. The group turns in the assignment with all four names on the cover page.</p>
<p>Collaborative Programming Sam and Ginger are both taking an advanced visual basic programming class this semester. According to the class syllabus, each assignment is to be done individually and not in groups. They have been working individually on a project for the class for several days and are having difficulty getting either of their own programs to run correctly. Around 2 am on the day the project is due, they agree via a text message to work together. They decide to combine their efforts and skills, pull the best parts from each individual project, debug the problem spots and turn in the project as their individual work.</p>
<p>Internet Plagiarism Professor Smith is reviewing the final papers in his management class. He turned the papers into turnitin.com to check for plagiarism prior to reading them. When reviewing the turnitin.com reports, he learns that Jason has 42% of his paper copied directly from various Internet sites. As a result, Professor Smith gives Jason a zero on the paper and reports him to the college on charges of academic misconduct.</p>

Table 2. Summary of Scenarios

a solution even with small sample sizes. This study analyzes a model with six constructs using a sample of 90 respondents and meets the recommended sample size requirement of 10 observations per construct (Hair et al., 2006). Construct

validity is assessed by using nomological, convergent, and discriminant validity. Nomological validity was assessed by using previously validated scales for all of the constructs; convergent validity was assessed using factor loadings, composite reliability (CR), the average variance extracted (AVE), and Cronbach's alpha. Initial assessment of the factor loadings for each of the four scenarios indicated no issues with loadings except for the scenario Improper Internet Citations. The loading for item PBC3 in that scenario was extremely small and was removed. The factor loadings and cross loadings were analyzed for each of the four scenarios and all loadings were greater than .70 as recommended by Hair et al. (2006), indicating appropriate convergence of the item to their factors. The mean, standard deviation, average variance extracted, Cronbach's alpha, and composite reliability for each of the constructs is shown in Table 3. Each construct had a Cronbach's alpha and composite reliability greater than .7 (Fornell and Larcker, 1981), as well as an average variance extracted greater than .5 as recommended by Chin (1998). Discriminant validity can be assessed by comparing the square root of the AVE to the correlations. Table 4 shows the latent construct correlations with the square root of the AVE on the diagonal for each of the 4 scenarios. Since the square root of the AVE is larger for each construct than any of the corresponding factor correlations, discriminant validity of the constructs is shown.

4. RESULTS

In order to test the structural model, the standard bootstrap resampling procedure in SmartPLS was used to determine which paths were significant. Each of the constructs in the structural model was analyzed as a reflective construct. Table 5 shows all of the hypothesized relationships and the t-test statistic to indicate which paths are significant. Three of the five paths (H1, H2, H4) in the model are significant for at least two of the scenarios. H5 is significant for the scenario Collaborative Programming only and H3 is not significant in any of the four scenarios. In PLS, R-square is a measure of the prediction quality of the structural model and gives an indication of the percentage of explained variance of that latent construct as driven by the indicator constructs. The R-square value for behavioral intention is .22, .46, .65, and .56 for scenarios 1-4 respectively as shown in Table 5. Figure 2 gives a summary of the significant hypotheses and the scenarios which supported each particular hypothesis.

In order to further examine the influence of the two additional constructs to the original TPB, we analyzed each scenario two additional ways: looking at the TPB only and looking at the TPB plus moral judgement. We then compared the three models across each of the four scenarios and present the results in Table 6. Clearly, the addition of moral judgement to the TPB was a major contributor in capturing additional variance for three of the four scenarios. Perceived importance only captured variance as represented by its significance for the Collaborative Computing scenario.

5. DISCUSSION

The proliferation of IT in the daily lives of college students has the potential to influence some of their ethical decision

making processes. A major contribution of this study is the examination of the potential disconnect in ethical decision making when IT is involved. The study also extends the TPB by including two additional constructs applicable to ethics: moral judgment and perceived importance. The findings indicate that four of the five proposed antecedents to behavioral intention were significant in some of the

scenarios. Attitude, subjective norm and moral judgment were each significant in three of the four scenarios. The significance of attitude and subjective norm as predictors is consistent with prior studies by Leonard, Cronan and Kreie (2004), Chen, Pan and Pan (2009), Henle, Reeve and Pitts (2010), and Simkin and McLeod (2010). Though moral judgment has not been studied to the same extent as the TPB,

	Mean	Standard Deviation	AVE	Composite Reliability	Cronbach's Alpha
Improper Internet Citations					
Attitude	6.19	1.03	0.643	0.844	0.732
Subjective Norm	4.84	1.73	1.000	1.000	1.000
Perceived Behavioral Control	3.56	2.24	0.772	0.871	0.706
Perceived Importance	2.64	1.39	0.750	0.933	0.890
Moral Judgment	2.29	1.37	0.646	0.879	0.822
Behavioral Intention	5.91	1.55	1.000	1.000	1.000
Chat Room Project					
Attitude	3.88	1.49	0.627	0.834	0.703
Subjective Norm	4.00	1.95	1.000	1.000	1.000
Perceived Behavioral Control	3.09	1.74	0.626	0.831	0.713
Perceived Importance	3.50	1.49	0.777	0.933	0.902
Moral Judgment	3.04	1.23	0.590	0.852	0.909
Behavioral Intention	2.61	1.66	1.000	1.000	1.000
Collaborative Programming					
Attitude	4.57	1.59	0.814	0.929	0.885
Subjective Norm	3.73	1.90	1.000	1.000	1.000
Perceived Behavioral Control	3.26	1.87	0.732	0.890	0.819
Perceived Importance	3.39	1.56	0.811	0.945	0.922
Moral Judgment	3.27	1.63	0.788	0.936	0.785
Behavioral Intention	3.79	1.89	1.000	1.000	1.000
Internet Plagiarism					
Attitude	2.63	1.78	0.845	0.942	0.911
Subjective Norm	5.79	1.66	1.000	1.000	1.000
Perceived Behavioral Control	3.23	1.89	0.730	0.889	0.812
Perceived Importance	2.13	1.24	0.867	0.963	0.951
Moral Judgment	3.88	1.74	0.729	0.915	0.878
Behavioral Intention	2.94	1.84	1.000	1.000	1.000

Scale = 1-7

Table 3. Descriptive Statistics and Psychometric Measurement Validation

Improper Internet Citations

	SN	PBC	ATT	BI	MJ	PI
SN	1.000					
PBC	0.189	0.879				
ATT	0.304	0.307	0.802			
BI	0.171	0.171	0.196	1.000		
MJ	-0.219	-0.078	-0.248	-0.430	0.804	
PI	-0.288	0.084	0.105	-0.280	0.465	0.866

Chat Room Project

	SN	PBC	ATT	BI	MJ	PI
SN	1.000					
PBC	0.252	0.791				
ATT	0.104	0.348	0.792			
BI	0.542	0.213	0.355	1.000		
MJ	-0.299	-0.068	-0.317	-0.476	0.768	
PI	-0.374	0.057	0.248	-0.288	0.288	0.881

Collaborative Programming

	SN	PBC	ATT	BI	MJ	PI
SN	1.000					
PBC	0.352	0.855				
ATT	0.459	0.483	0.902			
BI	0.759	0.412	0.540	1.000		
MJ	-0.376	0.026	-0.259	-0.265	0.888	
PI	-0.459	0.080	-0.074	-0.392	0.585	0.901

Internet Plagiarism

	SN	PBC	ATT	BI	MJ	PI
SN	1.000					
PBC	0.233	0.854				
ATT	0.080	0.383	0.919			
BI	0.299	0.310	0.661	1.000		
MJ	0.224	0.137	-0.198	-0.301	0.854	
PI	0.020	0.431	0.409	0.164	0.155	0.931

Table 4. Latent Construct Correlations with Square Root of AVE on the diagonal

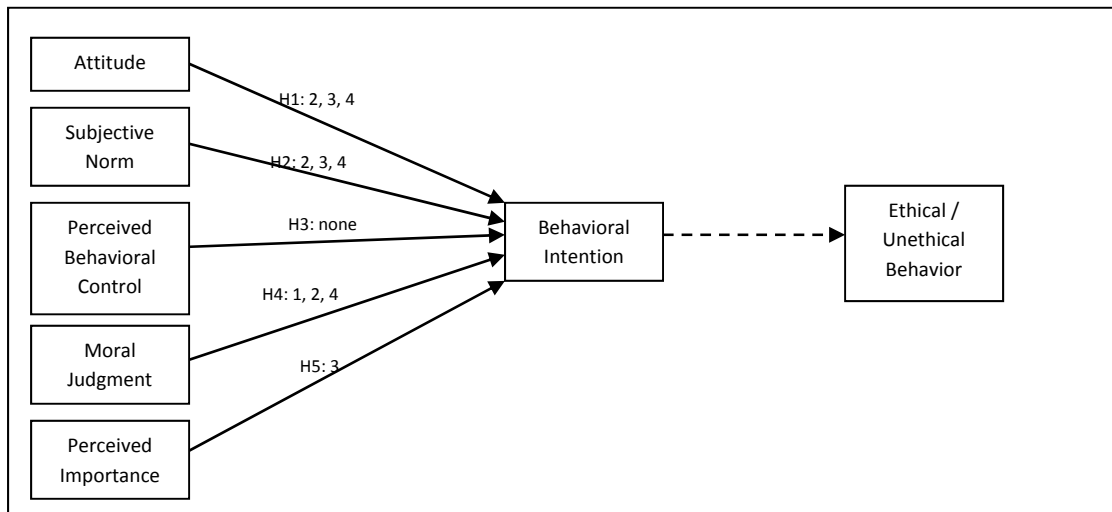


Figure 2. Hypotheses Supported by Scenario

Scenario	Hypotheses	β (t-statistic)	Result	R-Square
Improper Internet Citations	H1: attitude -> BI	0.089 (0.742)	Not supported	0.223
	H2: subjective norm -> BI	0.005 (0.053)	Not supported	
	H3: perceived behavioral control -> BI	0.130 (1.443)	Not supported	
	H4: moral judgment -> BI	-0.329 (2.912)	Supported**	
	H5: perceived importance -> BI	-0.146 (1.335)	Not supported	
Chat Room Project	H1: attitude -> BI	0.273 (2.793)	Supported**	0.461
	H2: subjective norm -> BI	0.386 (4.882)	Supported***	
	H3: perceived behavioral control -> BI	0.014 (0.163)	Not supported	
	H4: moral judgment -> BI	-0.231 (2.639)	Supported**	
	H5: perceived importance -> BI	-0.145 (1.601)	Not supported	
Collaborative Programming	H1: attitude -> BI	0.247 (3.034)	Supported**	0.649
	H2: subjective norm -> BI	0.565 (5.983)	Supported**	
	H3: perceived behavioral control -> BI	0.107 (1.429)	Not supported	
	H4: moral judgment -> BI	0.122 (1.606)	Not supported	
	H5: perceived importance -> BI	-0.194 (2.238)	Supported**	
Internet Plagiarism	H1: attitude -> BI	0.589 (7.601)	Supported***	0.564
	H2: subjective norm -> BI	0.289 (3.037)	Supported**	
	H3: perceived behavioral control -> BI	0.085 (0.920)	Not supported	
	H4: moral judgment -> BI	-0.247 (3.175)	Supported**	
	H5: perceived importance -> BI	-0.081 (0.990)	Not supported	

*** p<.001, ** p<.01, * p<.05

Table 5. Structural Model Results

Scenario	TPB only		TPB + Moral Judgment		TPB + Moral Judgment + Perceived Importance	
	signif paths	R-square	signif paths	R-square	signif paths	R-square
Improper Internet Citations	Nothing	0.063	MJ -> intention	0.2080	MJ -> intention	0.223
Chat Room Project	SN -> intention ATT -> intention	0.384	MJ -> intention SN -> intention ATT -> intention	0.446	MJ -> intention SN -> intention ATT -> intention	0.461
Collaborative Programming	SN -> intention ATT -> intention	0.628	SN -> intention ATT-> intention	0.629	SN -> intention ATT -> intention PI -> intention	0.649
Internet Plagiarism	SN -> intention ATT -> intention	0.498	SN -> intention ATT -> intention MJ -> intention	0.559	SN -> intention ATT -> intention MJ -> intention	0.564

where SN = subjective norms; ATT = attitude; MJ = moral judgment; and PI = perceived importance.

Table 6. Model Comparison

our significant findings are consistent with Banerjee, Cronan and Jones (1998), Trevino (1986) and Tan (2002). Furthermore, for the scenarios Chat Room Project, Collaborative Programming, and Internet Plagiarism, three antecedents (though not the same three) of the five antecedents were significant. The scenario Improper Internet

Citations only had moral judgment as a significant predictor of behavioral intention. In reviewing this particular scenario, it appears that the distinction between black and white is quite clear for this scenario. It is conceivable that students are more cognizant of the unethical behavior of copying directly from the Internet. The means for attitude, behavioral

intention, and PBC respectively in the scenario Improper Internet Citations are higher than in the other three scenarios. Furthermore, the scenario Improper Internet Citations mean for moral judgment is the lowest moral judgment mean of the four scenarios indicating a strong sense of moral reasoning.

An interesting finding across the scenarios in the study is that perceived behavioral control was not a significant predictor of behavioral intention for any of the four scenarios. This is counter to many of the prior studies that employed the TPB to study ethics. Admittedly, the TPB is a sound theory that has been tested and held in many disciplines (e.g., accounting, information systems, sociology, education, psychology, medicine) covering a plethora of behaviors (e.g., drug abuse, sporting event attendance, weight loss, software adoption). However, several studies involving ethics are consistent with this study and did not show PBC to be a significant predictor of behavioral intention. Moores, Nill and Rothenberger (2009) applied the TPB to study software piracy and did not find PBC to be a significant predictor; they explain that "...if someone believed software piracy was wrong, the ease with which software could be pirated would have no impact on their behavior (p. 87)." Additionally, Foltz, Schwager and Anderson (2008) applied the TPB to study individuals' intentions to read computer use policies and found that PBC was not significant in predicting behavioral intention. As PBC emphasizes an individual's perceptions of his ability to perform a particular action, the ability to copy paragraphs in an essay (the action depicted in the scenario Improper Internet Citations) as well as the group's decision to turn in the project with all four names (the action depicted in the scenario Chat Room Project) may reflect the reality of the students who participated in this study. Similarly, working with someone on the project but turning in an individual project (from scenario Collaborative Programming) and using the turnitin.com report to give Jason a zero and report him for academic misconduct (from scenario Internet Plagiarism) may also reflect student reality.

A second contribution of this study is the development and testing of the four ethics scenarios incorporating the use of IT. Each of these scenarios was developed through an iterative process employing feedback from a panel of ethics experts. The panel included academic ethics experts in the disciplines of marketing, information systems, and accounting as well as business practitioners. The expert panelists went through multiple iterations of providing feedback on the scenarios. Additionally, the scenarios were pilot tested with graduate students in an ethics course. These scenarios may be used by other researchers to further explore the impact of IT on ethical decision making. Future research could also apply other ethical decision making scales, such as the multidimensional ethical scale (Shawver and Sennetti, 2009) or the Defining Issues Test (DIT) (Rest et al., 1999) that is often used to measure effects of ethics education, to these four scenarios. Furthermore, the underlying theory of the DIT could be compared with the current findings applying the TPB. Due to the prevalence in on-line and distance education across the US, additional scenarios, such as one which focuses on electronic test taking, should be added in future studies.

A third contribution of this paper is the application of the scenarios to the classroom. Scenario-based situations should

be utilized in classroom discussions to promote ethical behavior when using IT. By presenting real-world situations that relate directly to the students' environment, the students will be more engaged in the discussion. In fact, these types of discussions can significantly impact student thinking. For example, acknowledging that a behavior is inappropriate could spark an intense debate. Underlying reasons for why a student may believe a behavior is acceptable could become apparent to the instructor which will not only assist in that class discussion, but will be beneficial to future class discussions as well. Ultimately, bringing forth these issues will make the students aware of behaviors that are not acceptable. Since students have been raised with technology (cell phones, laptops, iPads, and so forth), it is extremely important to use scenarios that are directly applicable to their everyday life as a student. The scenarios we have used in this study are examples of activities that students can relate to with IT. They are a good first step for in-class discussions that promote appropriate, ethical uses of IT.

6. LIMITATIONS

This study uses the self-reported judgments of the participants and the inherent limitations of this research design apply. Actual behaviors related to the ethical concerns presented were not observed or questioned. Even though the research instruments were not marked and anonymity was assured, some demand effects may persist. While students are the ideal subject pool for the research questions, the subjects for this study were all from universities in geographically similar locations. If ethical attitudes and judgments vary by cultural influences of a certain region, these results may not be applicable outside of the southwestern United States. However, both universities draw students from across the U.S. and internationally, so this concern is mitigated somewhat. Future research should include demographic questions regarding a student's home country and state as well as culture.

Another limitation of this study relates in particular to the Collaborative Programming Scenario. Due to the small percentage of participants in the sample that were majoring in MIS, the ability of the subjects at large to relate to or understand the Collaborative Programming Scenario may be limited.

7. CONCLUSION

This study examines the behavioral intention of students when using IT in an academic-setting. Utilizing the TPB as well as moral judgment and perceived importance, this study is a first step in the understanding of the ethical choices students make when using IT. By understanding student behavior, college faculty will be better able to direct class lectures and ensuing discussions to promote the ethical use of technology. In particular, IT faculty can utilize the scenarios from this study to begin their lectures about ethics in computing by having the students go through the scenarios in class (as they would if they were completing a survey). Once the students have noted their thoughts on each scenario, the students can discuss their thoughts with a small team of classmates, and then ultimately with the entire class. This

approach will bring forth issues that an individual student may not be able to identify on his/her own. IT faculty will be able to use these discussions, as well as the current study findings, to identify where weaknesses lie in student ethical frameworks and focus on those issues in future classes. Additionally, ethics and IT researchers will be able to extend this study by assessing additional variables and scenarios which further aid in the understanding of "ethics and IT".

8. REFERENCES

- Ajzen, I. (1989) "Attitude, Structure and Behavior," in *Attitude, Structure and Function*, by A. R. Pratkanis, S. J. Breckler, and A. G. Greenwald, (eds.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Ajzen, I. (1985) "From Intentions to Actions: A Theory of Planned Behavior," in *Action Control: From Cognition to Behavior*, by J. Kuhl and J. Beckmann, (eds.). New York: Springer-Verlag.
- Ajzen, I. (1991) "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes*, Vol. 50, No. 2, pp. 179-211.
- Ajzen, I. and Madden, T.J.(1986) "Prediction of Goal-Directed Behavior: Attitudes, Intentions, and Perceived Behavioral Control," *Journal of Experimental Social Psychology*, Vol. 22, pp. 453-474.
- Ajzen, I. and Fishbein, M. (1969) "The Prediction of Behavior Intentions in a Choice Situation," *Journal of Experimental Social Psychology*, Vol. 5, pp. 400-416.
- Banerjee, D., Cronan, T. P. and Jones, T. W. (1998) "Modeling IT Ethics: A Study of Situational Ethics," *MIS Quarterly*, Vol. 22, No. 1, pp. 31-60.
- Chen, M., Pan, C. and Pan, M. (2009) "The Joint Moderating Impact of Moral Intensity and Moral Judgment on Consumer's Use Intention of Pirated Software," *Journal of Business Ethics*, Vol. 90, pp. 361-373.
- Chin, W.W. (1998) "The Partial Least Squares Approach for Structural Equation Modeling," in *Modern Methods for Business Research*, by G.A. Marcoulides, (ed.). Mahwah, NJ: Lawrence Erlbaum Associates, pp. 295-336.
- Cronan, T.P. and Al-Rafee, S. (2008) "Factors that Influence the Intention to Pirate Software and Media," *Journal of Business Ethics*, Vol. 78, pp. 527-545.
- Cronan, T.P., Leonard, L.N.K. and Kreie, J. (2005) "An Empirical Validation of Perceived Importance and Behavior Intention in IT Ethics," *Journal of Business Ethics*, Vol. 56, pp. 231-238.
- Fishbein, M. and Ajzen, I. (1975) *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.
- Foltz, C.B., Schwager, P.H. and Anderson, J.E. (2008) "Why Users (Fail to) Read Computer Usage Policies," *Industrial Management & Data*, Vol. 108, No. 6, pp. 701-712.
- Fornell, C., D.F. Larcker. (1981) "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, Vol. 18, No. 1, pp. 39-50.
- Hair, J.F., Black, B., Babin., B., Anderson, R.E. and Tatham, R.L. (2006) *Multivariate Data Analysis*, 6th edition, Prentice Hall, Upper Saddle River, NJ.
- Henle, C.A., Reeve, C.L. and Pitts, V.E. (2010) "Stealing Time at Work: Attitudes, Social Pressure, and Perceived Control as Predictors of Time Theft," *Journal of Business Ethics*, Vol. 94, pp. 53-67.
- Jones, T.M. (1991) "Ethical Decision Making by Individuals in Organizations: An Issue-Contingent Model," *Academy of Management Review*, Vol. 16, No. 2, pp. 366-395.
- Josephson Institute. (2010) *Report Card on the Ethics of American Youth*, available at <http://charactercounts.org/programs/reportcard/index.html> (accessed 6/7/11).
- Kohlberg, L. (1984) "Essays on Moral Development," in *The Psychology of Moral Development*. New York, NY: Harper and Row.
- Kohlberg, L. (1971) "From Is to Ought: How to Commit the Naturalistic Fallacy and Get Away with It in the Study of Moral Development," in *Cognitive Development and Epistemology*, by T. Mischel, (ed.). New York, NY: Academic Press.
- Kohlberg, L. (1985) "The Just Community Approach to Moral Education in Theory and Practice," in *Moral Education: Theory and Application*, by M. W. Berkowitz and F. Oser, (eds.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kohlberg, L. (1976) "Moral Stages and Moralization: The Cognitive-Developmental Approach," in *Moral Development and Behavior: Theory, Research, and Social Issues*, by T. Lickona, (ed.). New York, NY: Holt, Rinehart and Winston.
- Kohlberg, L. (1969) "Stage and Sequence: The Cognitive-Developmental Approach to Socialization," in *Handbook of Socialization Theory and Research*, by D. Goslin, (ed.). Chicago, IL: Rand McNally.
- Kohlberg, L. (1980) "Stages of Moral Development as a Basis for Moral Education," in *Moral Development, Moral Education, and Kohlberg: Basic Issues in Philosophy, Psychology, Religion, and Education*, by B. Munsey, (ed.). Birmingham, AL: Religious Education Press.
- Koklic, M.K. (2011) "Non-Deceptive Counterfeiting Purchase Behavior: Antecedents of Attitudes and Purchase Intentions," *The Journal of Applied Business Research*, Vol. 27, No. 2, pp. 127-137.
- Leonard, L.N.K. and Cronan, T.P. (2001) "Illegal, Inappropriate, and Unethical Behavior in an Information Technology Context: A Study to Explain Influences," *Journal of the Association for Information Systems*, Vol. 1, No. 12, pp. 1-28.
- Leonard, L.N.K., Cronan, T.P. and Kreie, J. (2004) "What Influences IT Ethical Behavior Intentions – Planned Behavior, Reasoned Action, Perceived Importance, or Individual Characteristics?," *Information & Management*, Vol. 42, pp. 143-158.
- Liao, C., Lin, H. and Liu, Y. (2010) "Predicting the Use of Pirated Software: A Contingency Model Integrating Perceived Risk with the Theory of Planned Behavior," *Journal of Business Ethics*, Vol. 91, pp. 237-252.
- Lwin, M.O. and Williams, J.D. (2003) "A Model of Integrating the Multidimensional Development Theory of Piracy and the Theory of Planned Behavior to Examine Fabrication of Information Online," *Marketing Letters*, Vol. 14, No. 4, pp.257-272.

- Molnar, K.K., Kletke, M.G. and Chongwatpol, J. (2008) "Ethics vs. IT Ethics: Do Undergraduate Students Perceive a Difference?," *Journal of Business Ethics*, Vol. 83, pp. 657-671.
- Moore, T.T., Nill, A. and Rothenberger, M.A. (2009) "Knowledge of Software Piracy as an Antecedent to Reducing Pirating Behavior," *Journal of Computer Information Systems*, Vol. 50, No. 1, pp. 82-89.
- Nies, Y.D. and Russo, K. (2010) "University of Central Florida Cheating Scandal Prompts Professor to Issue Ultimatum," *ABC News*, November 10, <http://abcnews.go.com/Business/widespread-cheating-scandal-prompts-florida-professor-issues-ultimatum/story?id=11737137>, Accessed: 29 August 2011.
- Phau, I. and Ng, J. (2010) "Predictors of Usage Intentions of Pirated Software," *Journal of Business Ethics*, Vol. 94, pp. 23-37.
- Plowman, S. and Goode, S. (2009) "Factors Affecting the Intention to Download Music: Quality Perceptions and Downloading Intensity," *Journal of Computer Information Systems*, Vol. 49, No. 4, pp. 84-97.
- Rest, J. R., Narvaez, D., Bebeau, M.J. and Thoma, S. J. (1999). *Postconventional Moral Thinking: A Neo-Kohlbergian Approach*, Lawrence Erlbaum Associates, Mahwah, NJ.
- Robin, D. P., Reidenbach, R. E. and Forrest, P. J. (1996) "The Perceived Importance of an Ethical Issue as an Influence on the Ethical Decision-Making of Ad Managers," *Journal of Business Research*, Vol. 35, pp. 17-28.
- Schwartz, S. H. and Tessler, R. C. (1972) "A Test of a Model for Reducing Measured Attitude-Behavior Discrepancies," *Journal of Personality and Social Psychology*, Vol. 24, No. 2, pp. 225-236.
- Shawver, T. J. and Sennetti, J. T. (2009). "Measuring Ethical Sensitivity and Evaluation," *Journal of Business Ethics*, Vol. 88, pp. 663-678.
- Simkin, M.G. and McLeod, A. (2010). "Why Do College Students Cheat?," *Journal of Business Ethics*, Vol. 94, pp. 441-453.
- Stone, T.H., Jawahar, I.M. and Kisamore, J.L. (2009) "Using the Theory of Planned Behavior and Cheating Justifications to Predict Academic Misconduct," *Career Development International*, Vol. 14, No. 3, pp. 221-241.
- Tan, B. (2002) "Understanding Consumer Ethical Decision Making with Respect to Purchase of Pirated Software," *The Journal of Consumer Marketing*, Vol. 19, No. 2/3, pp. 96-111.
- Trevino, L. K. (1986) "Ethical Decision Making in Organizations: A Person-Situation Interactionist Model,"

Academy of Management Review, Vol. 11, No. 3, pp. 601-617.

- Zhang, W. (2007) "Why IS: Understanding Undergraduate Students' Intentions to Choose an Information Systems Major," *Journal of Information Systems Education*, Vol. 18, No. 4, pp. 447-458.

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APPENDICES

Appendix 1. Instrument Sources

Variable	Source (adapted from)
Attitude	Banerjee, Cronan and Jones (1998); Schwartz and Tessler (1972)
Behavioral Intention	Banerjee, Cronan and Jones (1998); Fishbein and Ajzen (1975)
Moral Judgment	Chen, Pan and Pan (2009); Tan (2002)
Perceived Behavioral Control	Chen, Pan and Pan (2009); Liao, Lin and Liu (2010)
Perceived Importance	Robin, Reidenbach and Forrest (1996)
Subjective Norms	Banerjee, Cronan and Jones (1998); Schwartz and Tessler (1972)

Appendix 2. Instrument Items

Scenario 1 – Improper Internet Citations

It is 11:00 p.m. and Susan is Facebook chatting with her friends. She has not started writing her research essay due the next day. One of her friends suggests finding papers on the subject from the Internet. Susan takes her friend’s suggestion and copies and pastes three paragraphs exactly from a website and places them in her essay. She puts the URL at the end of the three paragraphs referencing the web site, but does not include any quotation marks. She continues by adding some paragraphs of her own to the writing. Even though University policy indicates that all material taken directly from sources must be quoted, Susan feels that the URL placed at the end of the paragraphs is sufficient.

Example questions for Scenario 1 --

Behavioral Intention: If you were writing a research essay that was due the next day, what is the probability that you would have copied directly from a website?	highly probable	1	2	3	4	5	6	7	highly improbable
Attitude: Susan’s decision to copy the paragraphs from the website was:	good	1	2	3	4	5	6	7	bad
	right	1	2	3	4	5	6	7	wrong
	acceptable	1	2	3	4	5	6	7	unacceptable
Subjective Norms: How <u>morally obligated</u> would you feel to take corrective action in this case and tell the instructor that you had copied the paragraphs?	no obligation	1	2	3	4	5	6	7	strong obligation
Perceived Behavioral Control: Using the copied paragraphs in my essay would be:	easy	1	2	3	4	5	6	7	difficult
	simple	1	2	3	4	5	6	7	complicated
	under my control	1	2	3	4	5	6	7	out of my control
Moral Judgment: The act of copying paragraphs directly from a website is wrong.	strongly agree	1	2	3	4	5	6	7	strongly disagree
It is morally wrong to copy directly from the Internet.	strongly agree	1	2	3	4	5	6	7	strongly disagree
One should always consider the moral implications before copying from the Internet.	strongly agree	1	2	3	4	5	6	7	strongly disagree
There are moral reasons against copying from the Internet.	strongly agree	1	2	3	4	5	6	7	strongly disagree
Perceived Importance: Susan’s decision to copy the paragraphs from a website into her paper was a(n):	extremely important issue	1	2	3	4	5	6	7	unimportant issue
	highly significant issue	1	2	3	4	5	6	7	insignificant issue
	issue of considerable concern	1	2	3	4	5	6	7	issue of no concern
	fundamental issue	1	2	3	4	5	6	7	trivial issue

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